



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,154	09/11/2003	Richard Wiss	SYB/0092.01	2153
31779	7590	07/23/2010	EXAMINER	
JOHN A. SMART			PHAM, KHANH B	
201 LOS GATOS			ART UNIT	
SARATOGA RD, #161			PAPER NUMBER	
LOS GATOS, CA 95030-5308			2166	
			MAIL DATE	DELIVERY MODE
			07/23/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/605,154

Applicant(s)

WISS ET AL.

Examiner

Khanh B. Pham

Art Unit

2166

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/CD)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on April 4, 2010 has been entered.

Claim Objections

2. Claim 1 is objected to because of the following informalities:
3. Claim 1 recites "the remote site" at line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1-8, 10-23, 25-32, 34-43** are rejected under 35 U.S.C. 102(b) as being anticipated by Kolovson (US 5,951,695 A), hereinafter "Kolovson".

As per claims 1, 16, 17, Kolovson teaches a method for capturing database changes at a primary database and applying those changes to a replicate database while the replicate database remains online and available for use, the method comprising:

- "monitoring transactions occurring at the primary database for detecting changes made to the primary database" at Col. 3 lines 1-20 and Figs. 1-6;
- "recording information about transactions observed to have occurred at the primary database in a transaction log" at Col. 3 lines 1-20
- "synchronously copying the information about the transactions recorded in the transaction log to the remote site, so as to create at the remote site a mirrored transaction log that is guaranteed to contain at a synchronized point in time an exact copy of the transactions recorded in the transaction log at the primary database" at Col. 5 lines 1-50;
- "while the replicate database remains online and available for use, replicating changes made at the primary database to the replicate database by: reconstructing said transactions at the replicate database based on the information about the transactions copied to the mirrored transaction log" at Col. 8 lines 1-30 and Fig. 8;
- "asynchronously applying the reconstructed transactions at the replicate database" at Col. 8 lines 1-30 and Fig. 8.

As per claim 2, Kolovson teaches the method of claim 1, wherein "said transactions include selected ones of a Structured Query Language "INSERT", "UPDATE", "DELETE", "DDL" AND "PROCEDURE" operation" at Fig. 2.

As per claim 3, Kolovson teaches the method of claim 1, wherein "said recording step includes recording at least one log record about one of the transactions in the transaction log" at Col. 3 lines 15-20.

As per claim 4, Kolovson teaches the method of claim 3, wherein "said at least one log record characterizes changes made to the primary database in the transaction" at Col. 3 lines 1-20.

As per claim 5, Kolovson teaches the method of claim 1, wherein "said synchronously copying step includes using a file mirroring module" at Col. 4 lines 40-45.

As per claim 6, Kolovson teaches the method of claim 1, wherein "said synchronously copying step includes using file replication hardware" at Col. 4 lines 40-45.

As per claim 7, Kolovson teaches the method of claim 1, wherein "said synchronously copying step includes using file replication software" at Col. 4 lines 40-45.

As per claim 8, Kolovson teaches the method of claim 1, wherein "said synchronously copying step includes synchronously copying information to the transaction log and the mirrored transaction log before completing the transaction at the primary database" at Col. 5 lines 1-30.

As per claim 10, Kolovson teaches the method of claim 1, further comprising: "copying database schema information from the primary database to a site at which the mirrored transaction log is located to enable transactions to be reconstructed and applied at the replicated database" at Col. 3 lines 1-20.

As per claim 11, Kolovson teaches the method of claim 10, wherein "said replicating step includes reconstructing said transactions at the replicate database based at least in part on said database schema information" at Col. 8 lines 1-30.

As per claim 12, Kolovson teaches the method of claim 1, wherein "said replicating step includes formatting the reconstructed transactions to have the same formats as the transaction at the primary database" at Col. 8 lines 1-30.

As per claim 13, Kolovson teaches the method of claim 1, wherein "said asynchronously applying step includes verifying that the reconstructed transactions are ordered correctly" at Col. 8 lines 45-65.

As per claim 14, Kolovson teaches the method of claim 1, wherein "said asynchronously applying step includes applying the reconstructed transactions at the replicate database in the same order as the transaction order at the primary database" at Col. 8 lines 1-30.

As per claim 15, Kolovson teaches the method of claim 1, further comprising:
"responding to a database query at the replicate database while a transaction is being replicated from the primary database to the replicated database" at Col. 7 lines 10-40

Claims 18-23, 25-32, 36, 39-43 recite a method and a system for performing similar method as in claims 1-15 discussed above and therefore rejected by the same reasons.

As per claim 37, Kolovson teaches the method of claim 35, further comprising:

- "tracking modifications to said database schema information at the first database" at Col. 5 lines 1-30;
- "constructing a replicate operation based on said database schema information in effect when the operation is performed at the first database" at Col. 8 lines 1-35.

As per claim 38, Kolovson teaches the method of claim 30, further comprising:

- "assigning a unique identifier to database objects at the first database" at Col. 4 lines 57-65;
- "if a database object is modified, assigning a different unique identifier to the database object that is modified" at Fig. 2;
- "determining a particular database object to be used in constructing a replicate operation based upon said unique identifier assigned to said particular database object" at Col. 8 lines 1-30.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 9, 24 and 33** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kolovson as applied to claims 1-8, 10-23, 25-32, 34-43 above, and in view of Riedel et al. ("When Local Becomes Global: An Application Study of Data Consistency in a Network World"), hereinafter "**Riedel**"

As per claims 9, 24, 33, Kolovson teaches the method and system of claim 1, 18, 30 discussed above. Kolovson teaches the step of synchronously copying the information about the transaction log to the mirrored transaction log at Col. 5 lines 1-30,

but does not explicitly teach: "said synchronously copying step includes replicating at a file block level" as claimed. However, Riedel discussed at page 268, section 2.4 the advantage of replicating at file block level versus file level. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine Riedel with Shih's teaching as suggested by Riedel because "a successful system for global data placement should operate at the lowest-level of these interfaces in order to provide the maximum compatibility with existing applications" (Riedel, page 268).

Response to Arguments

8. Applicant's arguments with respect to claims 1-43 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed

by the Examiner.

In the case of amending the Claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

The prior art made of record, listed on form PTO-892, and not relied upon, if any, is considered pertinent to applicant's disclosure.

If a reference indicated as being mailed on PTO-FORM 892 has not been enclosed in this action, please contact Lisa Craney whose telephone number is **(571) 272-3574** for faster service.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh B. Pham whose telephone number is (571) 272-4116. The examiner can normally be reached on Monday through Friday 7:30am to 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hosain Alam can be reached on (571) 272-3978. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Khanh B. Pham/
Primary Examiner
Art Unit 2166

July 20, 2010